



The health impacts of heat waves in five regions of New South Wales, Australia: A case-only analysis

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Abstract:

OBJECTIVES: To determine and characterise the health impacts of extreme heat events on the population in five regions of New South Wales (NSW). Such data provide evidence necessary for the development of policy and programme initiatives designed to reduce the burden of disease due to the impact of climate change. **METHODS:** A case-only approach was used to analyse 1,497,655 emergency hospital admissions in Sydney East and West, Illawarra, Gosford-Wyong and Newcastle. The distribution of daily minimum and maximum temperatures in each region was used to define extreme heat (>/Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)99th percentile). We investigated the susceptibility of the main causes of emergency hospital admission to extreme heat. We also examined the presence of underlying conditions as a risk modifier of emergency hospital admission on extreme heat. Logistic regression model was used to estimate the effect modifications. **RESULTS:** Main causes: On days of extreme heat, the risk of emergency hospital admission due to heat-related injuries, dehydration and other disorders of fluid, electrolyte and acid-base balance increased more than the risk of admission from other causes. Underlying conditions: Those with underlying mental and behavioural disorders, diseases of nervous and circulatory system, especially cardiac, diseases of respiratory system, especially asthma and chronic obstructive pulmonary disease, neoplasms and renal disease, especially renal failure, were more susceptible to an extreme heat event. **CONCLUSIONS:** In this study, we identified several main diagnoses and underlying conditions for emergency hospital admission that are particularly susceptible to extreme heat events. This knowledge can contribute directly to establishing health programmes that would effectively target those with higher relative risk of emergency hospital admission due to extreme heat.

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Resource Description

Exposure : ☒

weather or climate related pathway by which climate change affects health

Air Pollution, Temperature

Air Pollution: Interaction with Temperature, Ozone, Particulate Matter, Other Air Pollution

Air Pollution (other): NO₂

Temperature: Extreme Heat

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Geographic Feature:

resource focuses on specific type of geography

Ocean/Coastal, Urban

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Australasia

Health Impact:

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Diabetes/Obesity, Injury, Mental Health/Stress, Morbidity/Mortality, Neurological Effect, Respiratory Effect, Urologic Effect, Other Health Impact

Respiratory Effect: Asthma, Chronic Obstructive Pulmonary Disease

Other Health Impact: heat related illness

Medical Community Engagement:

resource focus on how the medical community discusses or acts to address health impacts of climate change

A focus of content

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Children, Elderly

Other Vulnerable Population: people with cardiovascular disease; people with mental and behavioral disorders; people with respiratory disease; people with diabetes; people with renal disease; people with neurological disease; people with cancer

Resource Type:

format or standard characteristic of resource

Research Article

Resilience:

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to shifting climate impact circumstances while continuing to function

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Timescale: ☒

time period studied

Time Scale Unspecified